Air Force Plant 4
Fort Worth, Texas
Fact Sheet

Aeronautical Systems Center • Wright-Patterson Air Force Base, Ohio • May 1998 • PAM 98-085

Purpose

The purpose of this fact sheet is to reiterate the Air Force's commitment to environmental clean up at Air Force Plant 4 (AFP 4). Clean up activities are managed by the Aeronautical Systems Center's Environmental Management Directorate and are coordinated with the Restoration Advisory Board (RAB). The RAB consists of representatives from surrounding communities, local and state governments, the Base Conversion Agency (BCA), and the Air Force Center for Environmental Excellence (AFCEE). Working with the RAB, engineers at the ASC at Wright-Patterson Air Force Base, Ohio, selected various technologies to monitor pollution and remove contamination that could pose a threat to human health and the environment. These technologies are discussed in detail in this fact sheet.

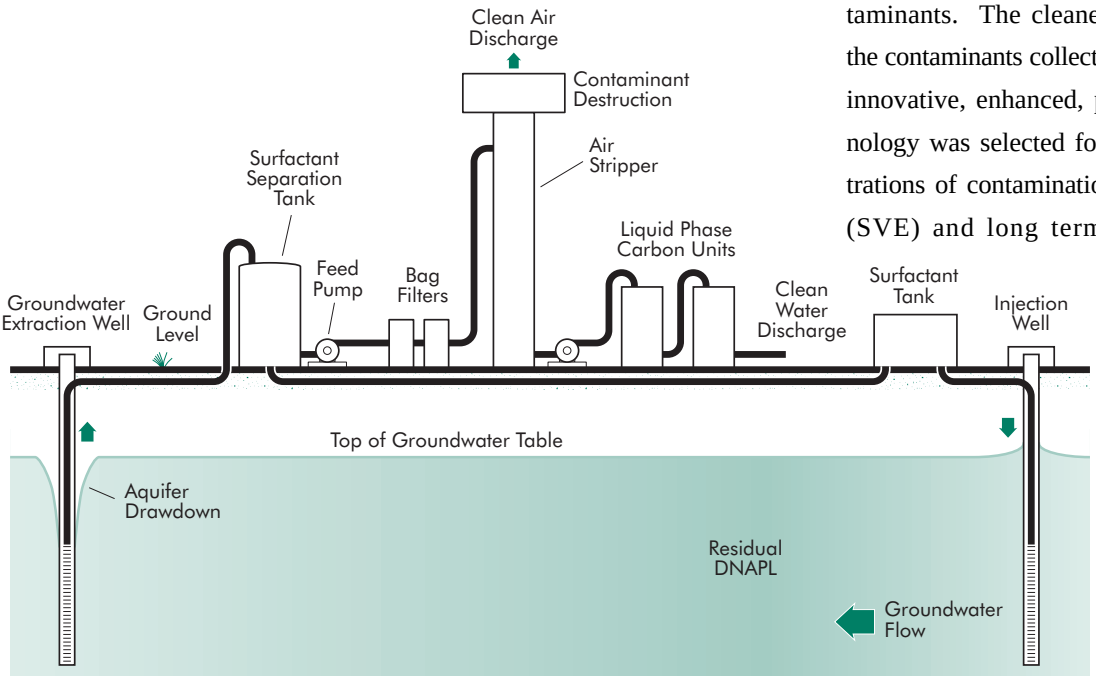
Included also is a brief discussion of the status of the clean up effort, its success rate, and the volume of water and soil thus far treated. Quantities of removed (disposed of) contaminants also are reviewed. A more complete explanation of the selected, remedial technologies can be found in the *Final Record of Decision for Air Force Plant 4, Tarrant County, Texas*, published July 1996. This document is part of the site's official Administrative Record and can be found at White Settlement Senior Services, 8211 White Settlement Rd., White Settlement, Texas, 76108, (817) 367-0166.

The final entry in this fact sheet is a discussion of the success of the Carswell field *phytoremediation* project. Phytoremediation is a low-technology approach to treating near-surface groundwater using eastern cottonwood trees. These trees are excellent for absorbing contamination from the water they draw.

Background

Site investigations conducted by the Air Force during the 1980s identified environmental contamination at AFP 4. On Oct. 15, 1984, the plant was proposed for inclusion on the National Priorities List (NPL). A Phase I Records Search identified hazardous spill sites and waste disposal sites. A Phase II Report, completed in December 1987, documented the presence of hazardous substances in the soil and groundwater. AFP 4 was officially placed on the NPL in August 1990. On Sept. 4, 1990, the Air Force, the Environmental Protection Agency (EPA) Region VI, and the Texas Natural Resource Conservation Commission signed a Federal Facilities Agreement.

The Remedial Investigation/Feasibility Study (RI/FS) eventually identified and investigated 30 Installation Restoration Program (IRP) sites. The Final RI/FS report was released in September 1995. The Record of Decision (ROD), dated July 1996, closed 28 of the 30 sites, and a number of remedial actions were selected in the ROD as clean-up remedies for the two remaining sites. Three standard pump-and-treatment systems were selected. Pump-and-treatment systems involve removing water from the ground through extraction wells, and treating the water by removing the contaminants. The cleaned water is discarded and the contaminants collected for proper disposal. An innovative, enhanced, pump-and-treatment technology was selected for areas with high concentrations of contamination. Soil Vapor Extraction (SVE) and long term monitoring also were implemented.



A pump-and-treat process involves the removal of groundwater through extraction wells. Contamination is then extracted by air stripping and collected for disposal.

Progress

The Air Force has taken aggressive actions to clean up these sites over the years. The Nuclear Aerospace Research Facility was decommissioned and cleared of radiological activity in 1974. Underground Storage Tanks (USTs) were identified at six of the 30 sites and were removed in December 1988. Approximately 17 million pounds of miscellaneous parts and concrete rubble were removed to a disposal site in Barnwell, S.C. An additional 25,000 cubic yards of contaminated soil were removed from various sites on AFP 4. Two French drains were installed in the bottom of an excavation at Landfill Number One (LF01) and were hooked up to an air stripper. As contaminants vaporize from the water, they are transferred through the air stripper and collected in carbon filters for disposal. The drains deter contaminated groundwater from flowing towards Meandering Road Creek and are still in operation today.

French drains are located inside Landfill No. 1. The drains prevent contamination of storm sewers by pumping leachate to an on-site, groundwater treatment facility.

From 1992 to 1994 the Air Force installed four interim, remedial action, pump-and-treat systems and a Soil Vapor Extraction (SVE) pilot system. Installation of these systems prevent further plume

migration. Source contamination in soil is treated through the use of the SVE system. In 1997 a Vacuum Enhanced Pumping (VEP) system was installed at Landfill No. 3 (LF03) to prevent the migration of contamination to Meandering Road Creek. Thus far, these systems have treated over 37 million gallons of water and removed approximately 4,000 pounds of trichloroethene (TCE).

Vacuum Enhanced Pumping (VEP) at Landfill No. 3 prevents migration of groundwater contamination into Meandering Road Creek.

Phytoremediation

A mature eastern cottonwood tree stands as a monument to the hundreds of saplings that comprise the phytoremediation project at Carswell Field. A mature tree, like this one, can draw up to 350 gallons of water from the aquifer each day.

One of the newest and most innovative technologies for groundwater clean up is phytoremediation. This involves planting trees in areas of contamination, where the water is relatively close to the ground surface. The trees are selected based on their ability to absorb large amounts of groundwater, degrade the contaminants for use as nutrients, and transpire (release) the water into the atmosphere through their leaves. The trees planted at Carswell Field are eastern cottonwoods, a type of poplar, and are planted in an area where the groundwater is 10-12 feet below the surface. Due to its success and unique approach to environmental remediation, NATO recently chose the Carswell phytoremediation project as a case study. A similar phytoremediation project is under consideration for Landfill No. 3 at AFP 4. The trees will be planted inside the fence along Bomber Road.

Landfill No. 3, along Bomber Road, is the proposed site for planting of eastern cottonwood trees, as part of a phytoremediation project for AFP 4.

The final action was installed and became operational in early 1998. The remaining actions listed in the ROD are currently being designed. The remedial design schedule will be completed by December 1998, the design of the systems to be concluded in 1999. The objective is to meet EPA's goal of fully-operational systems by the year 2000.

For More Information

For more information on the clean-up activities at Air Force Plant 4, or to learn more about the AFP 4 and Carswell Field Restoration Advisory Board, call or write:

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